Massachusetts Institute of Technology
Department of Physics

Condensed Matter Theory Seminar

" Panoramic correlations in glassy systems"

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Abstract: Upon cooling, a glass-forming liquid slows down dramatically without obvious changes in its microscopic structure. This glassy slowdown has long been attributed to the underlying rugged free-energy landscape with many metastable minima. In this talk, I will propose a way to characterize the statistics of the landscape through ``cavity point-to-set correlations," giving its panoramic view and detecting growing static correlations in glassy systems. These correlations further bring down the mean-field concepts, such as replica-symmetry breaking, to finite dimensions. I will present numerical data supporting this claim and analytical work to understand these phenomena through replica-symmetry-breaking instantons.

12:00noon
Tuesday, April 21, 2015
Duboc Room (4-331)